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THE MALE URETHRA.

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THE USE AND ABUSE OF INSTRUMENTS IN THE MALE URETHRA.

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THERE is perhaps no branch in the whole domain of surgery in which more brilliant and gratifying results can be obtained than in the treatment of ailments of the male urethra and bladder. And yet nowhere are our efforts at times more unavailing, and even productive of more positive harm.

This may be largely due to routinism or ruts, a clinging with fond tenacity on the part of teachers and practitioners to old-time theories and methods of treatment, although they are known to be incomplete or even wrong. As in every branch of medicine, new departures are looked upon with distrust, but here especially this would seem to spring from lack of inquiry and original research. So long as the names of Otis and Bigelow live, we shall, as a nation, always take a front rank in genito-urinary surgery, but aside from a few such men, those who have given time and thought to this line of study are the exception.

Our French brethren have an immense literature bearing on the subject, devoted chiefly, however, to originating and combating fanciful theories, while their ingenuity has given birth in the main to the most elaborate and often unpractical instruments. The Germans, too, in this particular, seem to have fallen short in logic and research. For instance, when looking over the armamentarium of an eminent Vienna specialist, he remarked that he was the only man in that city who had a sound over No. 30 charrière; while, at the largest genito-urinary clinic in their hospital, cases of retention, etc., from strictures, and deep-seated ones, too, are treated with conical silver catheters running down to Nos. 8, 7, and below of the same scale.

During conversation with a friend, a gynecologist, a short time since, I remarked on the size of his library; he answered that he had but a small portion of the literature bearing on



his specialty. He might have added that he was but one among thousands who are earnestly devoting themselves to the same line of study. It is fashionable with us, and we are proud to be looked upon as the gynecologists of the world; a man too need not hesitate to say anywhere that he is a "lady's doctor," while, on the other hand, he is not over-anxious to proclaim himself a "gentleman's doctor;" working beside with speculum, and the erudite finger goes ahead of groping in the dark at the end of a steel rod or silver tube. Lastly, it is natural, perhaps, that a male profession should *feel* for a suffering female laity, but while treating the mothers, we must not neglect to look after the fathers, past, present and future.

It will be my task to point out some of the ruts we are in, and some of the mistakes we are most prone to make, and to endeavor to show, where and how we can, in my humble opinion, improve on and correct them.

First, then, a few words concerning the surgical and pathological anatomy of the male urethra. I say surgical advisedly, on account of the importance of distinguishing between the urethra viewed from a surgical and from an anatomical standpoint. We have surgically a urethra proper, extending from the meatus to the triangular ligament, all behind that, *i.e.*, membranous and prostatic urethra, forming a cervix or neck of the bladder, and belonging surgically and pathologically to the latter. This neck has, at its outer end, a more powerful voluntary sphincter, and, at the inner, a weaker involuntary one. A familiar example will illustrate: As the bladder becomes distended, the uncomfortable feeling of fulness is supplanted by one of urging, and, stooping over to bring into play the voluntary muscles of the perineum which bear on the compressor urethræ, the unfortunate man, in Philadelphia at least, seeks in vain for a public urinal. The weaker involuntary sphincter has given way, the urine has entered the vesical neck, and voluntary action is required to hold it. So when disease has impaired the action of the latter muscle, the moment the urine has passed the first barrier, the urging is irresistible.

It is just here that so-called spasmodic stricture will be usually found, either holding the instrument fast, when once within the muscle, or preventing the entrance of the same. In the latter instance, however, the trouble often is that we do not find the opening in the triangular ligament.

Ultzmann was, I think, the first to demonstrate the action of these two sphincters. He is wont to impress it on his class

by the following simple experiment: Passing a catheter, to which is attached a syringe, as far as the triangular ligament, the water injected flows out of the meatus. This point is reached with a curved metal instrument at an angle of about 45 degrees. With the beak in the membranous urethra, the stream presses open the weaker sphincter, and enters the bladder, but, on removing the syringe, no fluid will flow out of the catheter unless the viscus be overdistended. Depressing the handle still more, the vesical contents are readily drawn off.

He has ingeniously made use of these facts in locating urethral troubles, and in applying treatment for the same. To the latter we shall have occasion to return later on.

Again, the introduction of an instrument will cause a stinging at the meatus increasing as the same is stretched. Beyond that to the bulb it will scarcely be felt, presupposing of course an absence of lesion, but the moment it enters the membranous portion, a peculiar sickening sensation is experienced, resulting at times in syncope. This pain is severe in proportion to the susceptibility of the individual and to the size of the instrument.

Further, once this boundary is passed, especially if the canal be roughly handled or unduly dilated in the bargain, we have reason to fear urethral chill, catheter fever, and the long list of names given to the groups of symptoms we ascribe to instrumentation in the urethra. Gynecologists tell us that, in the absence of the hymen, the use of instruments in the vagina is both painless and devoid of danger, but that we dare not enter the uterus without the greatest caution. So here, barring the orifice, which can be enlarged at will, we can treat the true surgical urethra without undue pain or complication, but once in the deep urethra, considered by many analogous in some parts and respects to the uterus, we must exhibit a like solicitude.

This brings me to my first point, namely: Never, without good reason, to pass this boundary between anterior or true and deep or vesical urethra; if we do so, always to use the smallest and softest instruments possible.

Such a statement may seem contrary to the teaching of Bigelow, and to disagree with the results of "rapid lithotripsy" as practiced to-day. In this operation complete anæsthesia brings about an entire relaxation of all the muscular fibres of the deep urethra, while the removal of every vestige of the concretion does away with the cause of all previous irritation.

Thus the two main drawbacks to lithotrity as formerly practiced, urethral reaction from instrumentation, and cystitis from fragments left behind, are obviated. Further, the mass of conservative authority leans to the use of smaller evacuators, and requires the acquisition of a greater skill in crushing,—in other words, instruments adapted to the size of the urethra, rather than the over-distension of some canals to bring them up to a standard calculated to lighten the labors of the operator.

Statistics show that the vast majority of strictures resulting from urethritis are situate anterior to the triangular ligament. In fact, this may be laid down as an absolute rule for practice. On the other hand, those of traumatic origin, as well from blows or falls as from the misuse of instruments, will be found at or behind the bulbo-membranous junction,—from external violence, because rupture usually occurs at this the weakest spot; from instrumentation, because it is just here that we are most liable to go astray.

How then are we to treat stricture after urethritis?

First, ascertain the normal calibre of the urethra; then, the exact size, character and location of the constriction or constrictions; freely enlarge the meatus and *posterior border* of the fossa navicularis, and pass *into* the stricture steel sounds, gradually increasing in size, until it is entirely obliterated; continue the use of these instruments at long intervals over an extended period of time. Should the constriction prove hard and resisting, should it prove resilient (this trait seems to belong more particularly to traumatic stricture), incise it freely, and to the uttermost fibre, by an internal urethrotomy.

Is this, however, routine practice? A urethritis runs its course leaving the lingering "drop in the morning." Sounds are passed *into the bladder*, until the limit of the meatus is reached, usually overstepped; it is enlarged, perhaps, and the treatment continued until the capacity of the urethra is filled.

Let us examine a little more in detail the course of treatment mapped out. There would seem to be no need of further comment on the desirability of ascertaining the normal calibre of the urethra, and diagnosing, accurately locating and measuring the stricture or strictures. These steps are indispensable to an intelligent treatment, especially since the demonstration of the existence of strictures of large calibre, and since the theory has been exploded that when the canal is large enough to pass a good-sized stream, it is sufficiently restored to be left alone. This is not such an old theory either, being taught

by one of England's most eminent authorities, and accepted, practically if not theoretically, by alas! too many. Otis' method of external measurement will give the size of the canal approximately, but for accuracy in diagnosing and locating, we need his urethrometer. In cases of tight stricture, the smaller-sized bulbs are preferable, because they will readily enter the urethra, and because his instrument, as a rule, registers incorrectly the lower numbers of the scale, besides losing its shoulder so to speak. In strictures of large calibre, however, it is invaluable, as it can be enlarged to fit the lumen of the urethra after passing the meatus. Once treatment is well under way, and the orifice freely cut, the firmer solid bulbs come into use again.

These data obtained and noted, it becomes necessary, in most cases, to enlarge the entrance to the canal. I dwell on this because, though apparently a trivial step, it but too often proves a stumbling-block. Had we a sound working on the principle of the urethrometer, one the size of which we could increase when within the urethra, we might leave the orifice alone. However, I have repeatedly met with cases where no stricture could be detected, and a free incision at this point was followed by complete cessation of all discharge. The term "cutting the meatus" seems to me decidedly wrong; it leads many astray, and has given rise to the very prevalent method of snipping the same with a pair of scissors to avoid hæmorrhage and pain. I followed the advice given me only to find, in my first case, a "stricture" at the other end of the fossa navicularis. Introducing the urethrometer, and screwing it up to the capacity of the urethra, we will find, on withdrawing it, either, that it comes out without a catch; this is rare, but if the case, no interference is necessary; or, it catches just within the lips of the meatus; if so, by all means let us use the scissors; but in most instances it will catch a short distance down. Be this a stricture or a normal contracture, the treatment is the same. Dilatation at this point is very painful, hence the meatus stretchers are not desirable, and nothing but a free incision, with a blunt pointed bistoury or meatotome passed in a half inch or more, will open the door, and obviate reclosure by healing.

A word next concerning the dilatation; the sound should not be passed into the deep urethra or bladder. Normally the narrowest parts of the canal are the vicinity of the meatus and the membranous portion; the former is enlarged and admits instruments, in consequence, which stretch the latter, cause

pain and suffering more or less intense, and often set up a most serious train of symptoms. Treatment must needs be stopped, or, if carried out without such complications, we justify the criticism made to me by a well-known German syphilographer, who disapproved of using large instruments "on the American plan," because he had observed that, in such cases, subsequent inflammations set up, and that at an early stage, trouble in the deep urethra, bladder, etc. Again the sound should be passed *into* the stricture only, and if there are several, the dilatation of the first should be complete before the second is touched and so on. As to the first point, when once in the stricture our end is accomplished, and there is no need of dilating any other portion. Having once accurately located the lesion, this is of course easy. As to treating more than one constriction at a time, there is this serious drawback: with the instrument tightly held, we lose the sensations conveyed in its onward journey, and can no longer guide it intelligently, or, using the amount of power necessary to force it through, we may do incalculable damage beyond. This is especially true of constrictions near the orifice of the canal, and hence another reason for their early and complete obliteration.

Further, the old-time sound is to my mind a snare. The temptation is almost irresistible to pass it beyond the angle of 45 degrees, or "all the way in;" the beak must needs be fully two inches beyond the stricture to give the same the full size of the instrument; pressure is made throughout the canal, when it is only needed at the point of constriction, and there is no scale to show just how far the beak has gone. A straight instrument will reach every point of the urethra proper, and, with a little practice, can be passed farther on if necessary. Dr. F. D. Weisse, of New York, published in the *Medical Record* of December 20th, 1884, the description of some bulbs and sounds which seem to fill a long-felt want. He has, too, in the accompanying article, emphasized the distinction between the urethra proper and the deep or vesical urethra. I have had a full set of his sounds and bulbs made for me, and I present them to the society for examination. He describes them as follows: The bulbs are "Otis' metal bougie à boule with a non-flexible, ruled staff, and with a bulb at either end—giving two sizes to the one instrument. Its length is six and one-quarter inches from the apex of one bulb to the base of the other. . . . The staff, smaller than the bulbs, has two flattened sides, which are ruled in one-quarter inch spaces, etc." These are useful, as before stated, in conjunction with

the Otis urethrometer, the advantage over the original instrument being the scale on the staff. With these go "a set of urethral sounds with ruled staffs." They consist of "a sound portion at either end—two sizes to one instrument—and an intervening staff portion. The *sound portion* is two inches in length; the middle, for an inch, presents the full circumference or size of the sound in millimetres (French scale); the ends (for half an inch each) taper through several sizes. The *staff portion* has much less circumference than the sound portions, and it is four and a quarter inches in length; it is flattened on two sides (one for each of the end sounds), which are ruled in inches, with the quarter inch divisions." The taper is abrupt, the sound or stretching portion is short, but fully long enough, while the scale, by comparison with the bulbs or urethrometer, tells exactly how far the instrument should be passed. Lastly, after giving them a fair trial, I feel they have enabled me to take a step in the right direction.

How and when are we to cut for stricture? As before stated, should we find a hard, resisting band or ring, into which an instrument enters with difficulty, causing pain and often more or less bleeding, a continuance of gradual dilatation is useless, and I sincerely hope the day is not far distant when, under these circumstances, cutting will be the rule, not the exception. Further, I do not see how any instrument but the one devised by Otis can do any permanent good. I once met with a stricture a short distance from the meatus, and, introducing an ear-speculum, I tried to cut it with a blunt-pointed tenotome. I was converted to the dilating urethrotome! The key-note seems to be complete division of every fibre, and when this is done, in the vast majority of instances, there will be no recurrence and no necessity for further instrumentation.

In the above category we ought to include resilient strictures, but as they are usually of traumatic origin and are found in the membranous urethra, they deserve separate mention. In this location, beside the tendency they show to recontraction, there is the danger of reaction from continued instrumentation and the stretching process, and sooner or later cutting must be resorted to. The enthusiasts on the subject of internal urethrotomy would carry that operation into this region. I would enter a most emphatic protest against such practice. The cases of death, whether from hæmorrhage, or shock, or urethral reactions, have been almost invariably after deep urethrotomies, and besides, the operation is exceedingly difficult of execution. I feel quite safe in saying that we may lay down the rule:

internal urethrotomy to the bulb, external urethrotomy or perineal section at or beyond that point. Here, too, when the section has been complete, there is no fear of recurrence.

There are inflammatory conditions of the urethra, granulations, erosions, etc., which often yield to pressure and topical applications, but when occurring in the deep urethra, where they are most obstinate, long lasting, and dangerous, we lose what is, perhaps, our most potent weapon. Pressure will stretch, will cause pain, and will sooner or later set up serious mischief. Our instruments then must be small and, if possible, soft. A Nélaton catheter, carried to a point where the fluid does not run out of the meatus, will irrigate the whole deep urethra, while the small-sized silver catheter of Ultzmann, with capillary perforation and syringe attachment (hypodermic size), or the porte remède of Dittel, will allow concentrated fluids and solids, respectively, to be accurately placed anywhere between the triangular ligament and the true vesical sphincter.

Passing to the bladder, I cannot refrain from a word concerning catheterization. There are here two flagrant abuses, the use of hard instruments and the desire to "put these in," not "let them find their way in." Simple as this caution may seem, it is none the less too often forgotten, and to this fact, with what abomination the metal catheter, are due, not only most cases of failure in retention, but all the false passages that so often complicate such failure. Nélaton and Mercier deserve the eternal thanks of suffering mankind, and alongside of them among the immortals should be seated the inventor of the filiform. With these three instruments, a syringeful of sweet oil, and a limitless supply of patience, at least no harm can be done.

The last resort, too, in such cases should, I think, often be a much earlier one, viz.: aspiration, a harmless operation, easy of execution, one that can be indefinitely repeated, but usually postponed until irreparable harm has been done.

In conclusion I would say a word concerning the treatment of acute urethritis.

May we not discard that, to my mind, more than useless instrument, the syringe? Was there ever a man who could properly inject his urethra? and, as a rule, how little do the two or three squirts a day avail him! Will not internal medication take the place of the syringe? In some cases, perhaps, yes; in some, perhaps, nature will come to the rescue; but a form of efficient local treatment must yet be found. This will supplant the syringe in the inflammatory stage, when hot

water, pure or slightly medicated, is used to cleanse and keep down inflammation, and in the stage of decline when astringents are substituted.

Irrigation has been highly lauded and severely criticised, but in it, I think we have, for the present, a solution of the problem. The main difficulty seems to be the pain caused by the instruments used. My attention was called some three years ago to an article by Whitehead, of Manchester, I believe, in the *Lancet*, describing a catheter for irrigation. It was of hard rubber, with a bulbous point from which "eyes" looked backward to prevent, forsooth, the passage of the water "into the bladder;" the shank was made up of three cords arranged spirally and forming three grooves for the ready egress of the water, and to insure its washing more of the surface. I sent for it, and used it—once. Thinking over the surgical anatomy of the urethra, I ventured to substitute a Nélaton catheter with the eye in the point, and found it worked perfectly well.

The course I pursue with an acute urethritis is as follows, and while there is no claim to originality in the method, I have used it long enough to heartily recommend it.

In a bath-room adjoining my office, I have a Betts' bucket and pan, such as he uses for the vaginal douche. The patient sits on the latter, as I found that in some individuals there was a tendency to faintness at first. In the bucket is warm water which is made hotter as desired; this is medicated slightly during the early stages with antiseptics, for which astringents are substituted later on. From the bucket runs a rubber-tube with stop-cock and adjustable tip at the extremity, and to this is attached a soft catheter with the eye at or as near the point as possible, and of a size to suit the meatus.

The patient having passed his urine, the instrument is lubricated with carbolized glycerin, and introduced beyond the limit of the inflammatory process, or to any point short of the triangular ligament; the water is turned on and flows forcibly out of the meatus. The sittings are daily and at first of short duration, the guide being the patient's feelings and face, and are gradually lengthened to one-half hour at the outside, while the temperature of the water can be raised by degrees to such a point that the hand can hardly be held in it. The average case requires about two weeks before the discharge becomes thin and watery, when irrigation is of no more avail. In some instances this stage is reached in a few days; in others, the average given is surpassed, but the most striking point is

the immunity from pain, dysuria, and chordee. With a meatus markedly swollen, a urethral mucous membrane deeply congested, and a discharge copious, thick, and of a greenish hue, we might expect such trouble, but it is absent, and when these symptoms present, irrigation quickly dispels them. Once the stage of decline is well advanced, I substitute for irrigation medicated bougies; any preparation can be ordered or obtained at Mitchell's, but I prefer pretty strong astringents with opium added. I order the long size (six inches), and have them cut in two and introduced, after lubrication with glycerin, three times daily for the first two days. If they are well borne, they can be lengthened as seen fit and introduced after each micturition. The discharge once stopped, or reduced to a minimum, it but remains, after a short wait, to carefully examine the urethra for sensitive spots or constrictions.

Of course, local and general hygiene are not forgotten, and remedies are administered as considered indicated. They will often materially hasten the end they do not seem readily to bring about alone.

Further, it is not always the remedies considered most potent in such cases that do the work. It is well to have a group of drugs to look to in any disease, but the empiricism this has led to has undoubtedly had much to do with the falling into disrepute of internal medication.

We have then, it seems to me, in irrigation a rational method of treatment, one that gives better results than we have been able to obtain thus far, but one which, at present, involves considerable time and trouble for the physician, as well as annoyance for the busy patient. It is most certainly worth our while to devote thought to the matter, and I confidently expect to see the day, and that shortly, when it will be so simplified and perfected as to become the routine treatment.

